In the Claims:

Please cancel claims 1-43. Please add new claims 44-72. No new matter is added by these amendments.

1.-43. (Canceled)

44. (New) A method of quantifying the amount of at least a first protein and a second protein in a biological sample, the first protein having a first monitor peptide and the second protein having a second monitor peptide, the first monitor peptide and the second monitor peptide being produced by digestion of the first protein and the second protein, respectively, by a proteolytic agent, comprising:

exposing the first monitor peptide and a labeled version of the first monitor peptide to a first binding agent, the first monitor peptide bound to the first binding agent and the labeled version of the first monitor peptide bound to the first binding agent being first bound peptides;

exposing the second monitor peptides and a labeled version of the second monitor peptide to a second binding agent, the second binding agent being different from the first binding agent, the second monitor peptide bound to the second binding agent and the labeled version of the second monitor peptide bound to the second binding agent being second bound peptides;

peptides produced by the digestion of the first protein and the second protein not bound to the first binding agent or the second binding agent being unbound peptides, separating at least some of the bound peptides from at least some of the unbound peptides; and

measuring the amount of the first monitor peptide that was separated from at least some of the unbound peptides using a mass spectrometer.

45. (New) The method of claim 44, further comprising:

measuring the amount of the labeled version of the first monitor peptide that was separated from at least some of the unbound peptides; and

calculating the amount of the first protein in the biological sample.

46. (New) The method of claim 44, further comprising:

measuring the amount of the labeled version of the first monitor peptide that was separated from at least some of the unbound peptides;

calculating the amount of the first protein in the biological sample;

measuring the amount of the second monitor peptide that was separated from at least some of the unbound peptides;

measuring the amount of the labeled version of the second monitor peptide that was separated from at least some of the unbound peptides; and

calculating the amount of the second protein in the biological sample.

47. (New) The method of claim 44, further comprising:

separating at least some of the bound peptides from the first binding agent.

48. (New) The method of claim 44, wherein the first binding agent is an antibody.

49. (New) The method of claim 44, wherein the first binding agent is a monoclonal antibody.

50. (New) The method of claim 44, wherein the first binding agent is a polyclonal antibody.

51. (New) The method of claim 44, wherein the first binding agent is an RNA aptamar.

52. (New) The method of claim 44, wherein the first binding agent is a recyclable binding agent.

53. (New) The method of claim 44, further comprising:

preparing the labeled version of the first monitor peptide.

54. (New) The method of claim 44, wherein the labeled version of the first monitor peptide includes a stable isotope.

55. (New) The method of claim 44, wherein the first binding agent is attached to a support.

56. (New) The method of claim 44, wherein the first binding agent is attached to a packed column.

57. (New) The method of claim 44, wherein the first binding agent is attached to a monolithic porous support.

58. (New) The method of claim 44, wherein the first binding agent is attached to a mesh.

59. (New) The method of claim 44, wherein the first binding agent is attached to magnetic beads.

60. (New) The method of claim 44, wherein the first monitor peptide and the second monitor peptide are selected for optimal differential detection in the mass spectrometer.

61. (New) A method for quantifying the amount of a target protein in a biological sample, the target protein including a monitor peptide produced by digestion of the biological sample by a proteolytic agent, the mixture of the digested biological sample and a labeled version of the monitor peptide being a peptide mixture, comprising:

exposing the peptide mixture to an antibody that binds to the monitor peptide and to the labeled version of the monitor peptide to produce bound monitor peptides;

separating at least some of the bound monitor peptides from at least some other peptides of the peptide mixture; and

measuring the relative amounts of the monitor peptide separated from the at least some other peptides of the peptide mixture and the labeled version of the monitor peptide separated from the at least some other peptides of the peptide mixture using a mass spectrometer.

62. (New) The method of claim 61, wherein the antibody is a monoclonal antibody.

63. (New) The method of claim 61, wherein the antibody is a polyclonal antibody.

64. (New) The method of claim 61, further comprising:

preparing the labeled version of the monitor peptide.

65. (New) The method of claim 61, wherein the labeled version of the monitor peptide includes a stable isotope.

66. (New) The method of claim 61, further comprising:

selecting a monitor peptide; and

creating the antibody.

67. (New) A method for quantifying the amount of a target protein in a biological sample, the target protein including a monitor peptide produced by digestion of the biological sample by a proteolytic agent, the mixture of the digested biological sample and a labeled version of the monitor peptide being a peptide mixture, comprising:

exposing the peptide mixture to a binding agent that specifically binds to the monitor peptide and to the labeled version of the monitor peptide to produce bound monitor peptides;

separating at least some of the bound monitor peptides from at least some other peptides of the peptide mixture; and

measuring the relative amounts of the monitor peptide separated from the at least some other peptides of the peptide mixture and the labeled version of the monitor peptide separated from the at least some other peptides of the peptide mixture using a mass spectrometer.

68. (New) The method of claim 67, wherein the first binding agent is a monoclonal antibody.

69. (New) The method of claim 67, wherein the first binding agent is a polyclonal antibody.

70. (New) The method of claim 67, wherein the first binding agent is an RNA aptamar.

71. (New) The method of claim 67, further comprising:

preparing the labeled version of the monitor peptide.

72. (New) The method of claim 67, wherein the labeled version of the monitor peptide includes a stable isotope.